SANA Needle Exchange Program: Attendance and Response to HIV-related Interventions among Participants

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Abstract

Aims To examine the relationship between Needle Exchange Program (NEP) attendance and self-reported responses to HIV-related interventions among participants in Lane County, Oregon. **Design and setting** Between December 2007 and May 2008, 86 out of about 150 (57%) injection drug users (IDUs) participated in this project in Eugene, OR. All participants were exposed to prevention services targeting HIV and drug abuse. **Measurements** Length and frequency of program attendance were tested as a correlate of injection practices including whether sharing needles at last time of injection; how many sharing partners they had in the last month; and prevention services participants have accessed since participating in the program. **Findings** 100% of respondents reported obtaining needles from the NEP. Only 1.2% reported getting referrals. Testing and vaccinations services accessed by respondents, and the number of sharing partners in the last month were significantly related to length of NEP attendance. Our results imply that the NEP represents valuable risk-reduction efforts targeting IDUs when participants use the program for 6 months or longer. The NEP should continue distributing needles and supplies to participants and reach out to more IDUs. The NEP should also adopt more effective strategies to encourage longer and consistent NEP attendance.

Keywords HIV, injection drug use, needle exchange programs

Behaviors associated with drug use that are responsible for HIV transmission include shared use of injection equipment and unprotected vaginal or anal intercourse with an injecting drug user [6]. Interventions that can reduce the prevalence of these behaviors are therefore a critical component of comprehensive HIV/AIDS prevention policy. Approaches to HIV risk reduction among injection drug users (IDUs) include drug abuse treatment, HIV testing and counseling programs, street-based outreach conducted by peer educators, individual and group counseling, community-level interventions to change IDU norms concerning safer injection and safer sex, and syringe exchange programs to provide IDUs with sterile injection supplies.

Over 17.5 million syringes were exchanged in 100 needle exchange programs in 1997 in the United States alone, a rate that more than doubled from the 8 million needle exchanges in 1994 to 1995 [21]. These programs have developed within the harm reduction model, which aims to reduce drug-related harm, specifically the spread of HIV/AIDS, among injection drug users and their partners. Harm reduction is based on the fact that drug use will continue to exist for many IDUs and that safer use is always possible [6]. The public health perspective also suggests that due to the urgency of the HIV/AIDS epidemic, making any positive change in health behaviors should be the goal of prevention services to injection drug users rather than simply striving only

for abstinence [4]. When compared to the cost of treating an individual with HIV/AIDS, harm reduction programs are more cost effective [5].

Despite the growth, needle exchange programs have long been controversial. Scientific evidence about the effectiveness of needle exchange programs has been somewhat ambiguous. Proponents of needle exchanges point to studies that show reduced rates of HIV risk behaviors such as needle sharing among participants in the programs, while opponents cite other studies that indicate needle exchanges have no such effect.

Needle exchange programs are often viewed as an alternative to traditional abstinence-based drug treatment services rather than a service that can work in conjunction with these programs. However, needle exchange can be coupled with abstinence-based drug treatment services, and can often provide a continuum of services for participants. Results from a study in Cleveland, Ohio implied that needle exchange services might serve as an important component in a continuum of care when coupled with traditional abstinence-based services [17]. A Baltimore study comparing individuals who entered treatment from a needle exchange program with participants from other referral services found that although the former had greater baseline severity of drug use, short-term outcomes were comparable [19]. Another study in Baltimore showed that entering treatment was associated with NEP utilization, being female, and being HIV-positive [14]. This function of NEPs would be very important, as injection drug users appear to be less likely to access drug treatment services on their own.

While these programs continue to be controversial, the rationale for needle exchange is simple. Using clean needles and supplies reduces the possibility of getting a disease by sharing a needle with another person. Without a vaccine or a cure, prevention is one of the tools to control the spread of new HIV infections. Although this is a seemingly key idea, there has not been enough prospective research that examines the effectiveness of all aspects of these programs, due to several embattled issues, such as politics, and the fact simple that NEPs produce a major increase in the overall availability of needles in a community.

Background

Many NEP studies have found that NEP attendance is associated with reduced needle sharing [3]. In both Oakland and San Francisco, for example, NEP attendees were significantly less likely than non-attendees to share needles [1, 28]. Studies of IDUs recruited from NEPs in New York and Baltimore have found consistent reductions in needle sharing among NEP participants [9, 13]. In Providence, Rhode Island, a study showed that drug users who attended the NEP less frequently were more likely to report needle sharing, less likely to report always cleaning their skin, and more likely to report sharing cookers [15].

However, the evidence is not universally consistent. A San Francisco study found no relationship between frequency of NEP attendance and the likelihood of needle sharing [7]. Another study in New York also found no significant difference between NEP attendees and non-attendees in needle injecting and sharing frequency [26]. Studies in Baltimore also found that readiness for cessation of drug use and needle sharing was associated with speedball injection and previous enrollment in drug treatment but not with NEP attendance [9]. Therefore,

it cannot be assumed that distribution of needles through NEPs will necessarily result in reduced rate of needle sharing, which is a vital component of HIV prevention.

To add to the debate on program effectiveness of needle exchange programs, this paper will examine HIV Alliance's Needle Exchange Program. This needle exchange program is offered to injection drug users in the Lane County, Oregon area and aims to prevent new HIV infection cases with the intent of protecting the health and safety of the local community. Program data has shown some positive results in terms of reduced rate of new HIV infection cases in Lane County among IDUs. According to the agency's annual reports, only 2 SANA needle exchange client has tested positive for HIV in the past six years, compared to an average of 2-3 clients tested positive each year before the implementation of the program. However, no data has been collected on program participants' responses to prevention services provided by the NEP (needle exchange, testing & vaccinations, supplies, referrals), which will help further evaluate the effectiveness of the program.

This project was conducted to look at the relationship between length and frequency of NEP attendance and risk behaviors. It also examined the scope of services that the NEP provides to its participants.

Methods

Setting

The SANA Needle Exchange Program was founded in 1999, and has been the only needle exchange program in Lane County and its surrounding areas since then. NEP services were provided through a van that serviced several locations across the city. New participants in the NEP are assigned a unique code that is used to record all future exchanges. Needle exchange is on a one-for-one basis with no upper limit. With each exchange, sterile alcohol swabs, clean cotton balls, cookers, condoms, and HIV prevention brochures were made available. Referrals to HIV testing and Hepatitis AB/Hepatitis C vaccinations are available upon request. Participants can also get referrals to formal drug treatment, health care services, housing assistance, and social service support.

Based on program data, currently this program reaches 7,500 of the estimated 10,000 injection drug users living in Lane County. Annually, over 550,000 needles are exchanged and safely disposed of in biohazard containers. This program is unique for several reasons including: close partnership with the local Public Health Department, HIV testing and counseling provided off site at needle exchanges, free Hepatitis A and B vaccinations available at needle exchange and overall community by-in for the program. The NEP is also operating the Wound and Abscess Care Program at one of its needle exchange sites, where a doctor is on site to work directly with clients who are affected by injection drug use and who have little or no access to health care. Recently at the 18th North American Syringe Exchange Conference (Tacoma, WA, May 2008), HIV Alliance SANA NEP had been viewed as in the top ten percentile of needle exchange programs in the nation and the world in needles exchanged and prevention services offered. The conference also came to a consensus that the next move in collective mission of NEPs attending

the conference is that they will start focusing on Hepatitis C virus (HCV) services to the population they are currently serving.

Data

Self reported data were collected on SANA Needle Exchange Program participants for an approximate period of four months. The settings for the project were needle exchange operation sites at Eugene, OR, including Blair Street, Glenwood, HIV Alliance agency site, and other outreach sites. Sample of the project were drawn from injection drug users in Lane County. Participants recruited at NEP sites were required to be at least age 18 years and to have utilized program services in the past to be eligible for this study.

Study Procedures

Staff of the SANA Needle Exchange Program started handing out the program intake survey to every needle exchange client four days a week starting December 2007. In practice, before any needle exchange activity, every participant is required to fill out a program intake survey to be eligible for exchanging needles and supplies. Four additional questions were added to the program intake survey for this project. Participants answered questions on whether they shared needles at the last time of injection; how many injection partners they shared needles with in the past month; what prevention services they have utilized since participating in the needle exchange program; and length and frequency of their NEP attendance. The University of Oregon Human Subjects Committee approved the study.

The first data set with 78 responses was received late March 2008. Unfortunately, survey results were not attached to participants' intake survey forms. It was therefore impossible to run bivariate analyses using the data set. With time constraints, the NEP program coordinator immediately agreed to start a new data collection process with his staff and volunteers. In April and May, the second data set was collected and used for analysis for this project. Of about 150 individuals seen at this NEP during the study period, 86 (57%) completely filled out the intake survey. To make the best use of the first data set, a univariate analysis was conducted using SPSS software, the results of which are included in the Appendix.

Measures

We were interested in examining the relationship between frequency and length of program attendance and participants' responses to four survey questions. Two out of the four questions were taken from the Family Health International Behavioral Surveillance Survey (BSS), which is one of the internationally accepted, consistent methods for measuring factors related to HIV prevention across countries.

The independent variables of the study were frequency and length of NEP attendance. Participants were asked, "On average, how often did you visit the needle exchange?" Their responses were dichotomized to indicate visiting the NEP once a month or less, and two or more times per month. Length of participation was separated into two categories, six months or less, and more than six months.

The dependent variables were survey responses from program participants, including whether participants shared needles at the last time of injection, how many injection partners they had shared needles with in the past month, and what kind of services (Needles, Testing &Vaccinations, Supplies, Referrals) participants have accessed since participating in the NEP. The first dependent variable, whether participants shared needles at the last time of injection, was dichotomized (yes/no). The second dependent variable, number of sharing partners in the past month, was created by assigning 0 to 2 to participants reporting none, 1, 2 or more sharing partners. 100% of participants reported getting needles from the NEP, therefore this variable was not included in the bivariate analysis. The testing and supplies variables were both dichotomized into yes/no categories. Given the fact that only about 1.2% of participants reported getting referrals from the NEP, this variable was not included in the bivariate model, since it will not generate valuable information with such a small portion of the sample.

Other variables in the analysis included age, gender, race/ethnic background, language, sexual orientation, whether experiencing homelessness, and source of financial support. For the analyses, we converted age into two categories, 35 or under, and over 35. Because the sample was predominantly white, we dichotomized race as white and other. Language was tri-chotomized into three categories, English, Spanish, other. Sexual Orientation variable included three categories, heterosexual, homosexual, and bisexual. Whether experiencing homelessness was a dichotomous variable reflecting whether participants reported being homeless or housed at the time of the survey. Finally, the source of financial support was separated into four categories, trade sex for money or drugs, work, here and there, and other.

It is possible that, in response to HIV-related interventions, some injectors stopped injecting drugs entirely. Since the predictors are designed to track changes over time among people who continue to inject drugs, people who cease to inject were excluded in this study analysis.

Statistical Analysis

Data analyses were first conducted using the SPSS software running descriptive statistics to describe the sample population and their self-reported responses to survey questions. Chi Square statistics were then run to explore the independent predictors and the relationship between length and frequency of NEP attendance and survey responses. Five percent significance level was used in the analyses. Because of the sample size of this project, multivariate analyses were not conducted, since it would be hard to generate meaningful results.

Other variables used in univariate analyses were examined using a univariate model include age, gender, race/ethnicity, language, sexual orientation, whether experiencing homelessness, and source of financial support for drug use.

Findings

The sample of 86 injection drug users primarily consisted of impoverished drug users in Eugene/Springfield and its surrounding areas. Respondents were more likely to be 35 years old, white, and/or speaking English. Two thirds were male, and over one-third (38.2%) reported homelessness at the time of needles exchanges during the study period. The majority of the

sample population was heterosexual, while about 13 percent reported being either homosexual or bisexual. Two thirds (66.7%) held jobs at the time of the survey, and less than one third reported getting financial support here and there, or in other ways. Only less than 4 percent of the sample reported trading sex for money or drugs (Table 1.1). The above information was found to be consistent with those shown in the subset sample (Table 3).

About half of the sample population reported having only used the NEP once per month (53%). Half of the sample also reported attending the NEP for less than 6 months (54.1%) (Table 1.2). Among different services, the core intervention is needle exchange. All respondents reported obtaining needles from this NEP. Over half of the sample population received testing and vaccinations services. The majority (93%) obtained additional supplies. Less than two percent of respondents reported getting referrals from the NEP. Only about ten percent of respondents reported sharing needles at the last time of injection. However, more than thirty percent of them reported sharing needles with one or more persons in the last month.

TABLE 1.1

Socio-demographic Characteristics, Univariate Analysis, Eugene, Oregon, 2007-2008

Characteristics	Percent (n=86)
Age (years)	
≤35	29.4
> 35	70.6
Gender	
Female	33.7
Male	66.3
Race/ethnicity	
White, non-Hispanic	83.3
Other	16.7
Language	
English	96.5
Spanish	3.5
Other	0
Sex Orientation	
Heterosexual	87.3
Homosexual	5.6
Bisexual	7.0
Homeless	
Yes	38.2
No	61.8
Financial Support	
Trade sex for money or drugs	3.8
Work	66.7
Here and There	12.8
Other	16.7

Table 1.2

Program Participation Characteristics, Needle Variables Characteristics, Univariate Analysis, Eugene, Oregon, 2007-2008

Characteristics	Percent (n=86)
Program Participation	
Length of attendance	
Less than 6 months	54.1
6-12 months	10.6
1-2 years	17.6
More than 2 years	17.6
Frequency of attendance (times per month)	
Not more than 1 time	53.0
2-3 times	30.1
4 times or more	16.9
Services accessed	
Testing & Vaccinations	
Yes	57.0
No	43.0
Supplies	
Yes	93.0
No	7.0
Referrals	
Yes	1.2
No	98.8
Needle Variables	
Whether sharing needles at last time of injection	
Yes	9.6
No	90.4
Number of sharing partners in the past month	
None	66.7
1	25.9
2 or more	7.4

TABLE 2

Bivariate Relationships between Frequency & Length of Attendance and Program Participation & Needle Variables

	Frequency of Attendance		**Length of Attendance**	
	≤ 1 time per month (n=32)	≥ 2 times per month (n=54)	≤ 6 months (n=17)	>6 months (n=69)
Program Participation				
Services accessed				
Testing & Vaccinations	100.0%	100.0%	100.0%	100.0%
Yes	37.2	46.2	19.6	71.8***
No	62.8	53.8	80.4	28.2
Supplies	100.0%	100.0%		
Yes	95.3	89.7	93.5	92.3
No	4.7	10.3	6.5	7.7
Needle Variables	100.0%	100.0%	100.0%	100.0%
Whether sharing needles at last time of injection				
Yes	12.2	7.7	9.1	10.3
No	87.8	92.3	90.9	89.7
Number of sharing partners in the last month				
None	66.7	64.1	66.7*	66.7*
1	28.2	25.6	19.0*	33.3*
2 or more	5.1	10.3	14.3*	0.0

* p<.05 **p<.01 ***p<.001

As shown in Table 2, respondants reported having participated in the NEP for more than 6 months had a significantly greater chance of accessing testing and vaccinations services than those who only had been with the NEP for 6 months or less (71.8% vs. 19.6%). The number of partners that respondents reported sharing needles with in the past month is also significantly related to length of NEP attendance. None of respondents who had been participated in the NEP for more than 6 months reported having shared needles with 2 or more persons in the last month, while about 15 percent of those who had been with the NEP for less than 6 months reported having 2 or more persons sharing needles with them.

The results indicated no significant relationship between frequency of NEP attendance and participants' response to program participants and risk behaviors. However, there was no

increase either in not sharing needles at last time of injection, which is substantial because the risk is reduced, though not eliminated when sharing with even just one partner.

Discussion

Based on the finding that, a relatively small portion of respondents reported sharing needles at the last time of injection, to some extent, the NEP seems to be working in its attempts to reduce the rate of needle sharing among IDUs. However, about one third of respondents reported having shared needles with 1 or more person in the last month. This might be due to the fact that most respondents who reported sharing with more than 1 partner had only been with the NEP for less than 6 months. It implied that when researchers conduct an evaluation of a NEP, they should take into account a comprehensive spectrum of participants' background, experience, and risk behaviors they might have. Researchers cannot count on data that show improvement on one area of the spectrum to make a conclusion on the effectiveness of a NEP.

Since all participants reported getting needles, and the majority reported receiving additional supplies from the NEP, the NEP seems to be offering services that meet the needs of its participants. Very few respondents reported getting referrals from the NEP, indicating that the program is not an effective bridge to drug treatment services, or perhaps program staff should come up with more effective strategies to offer referrals to more participants.

Our findings indicated that length of NEP attendance is related to reduction in risk behaviors, which suggest that NEPs could represent a valuable opportunity to promote risk reduction efforts beyond the avoidance of needle sharing [15]. Results also implied that NEPs should adopt strategies to encourage longer and consistent attendance of NEP for those who continue to inject drugs and are currently receiving prevention services. The NEP may be able to promote risk reduction through more aggressive efforts to reach more IDUs in its operation areas.

Part of the above findings seems to be a departure from some prior research regarding the relationship between NEP attendance and risk behaviors. Studies in New York and Baltimore have found consistent reductions in needle sharing among NEP participants [9, 13]. Another study in Providence, Rhode Island, also showed that drug users who attended the NEP less frequently were more likely to report needle sharing, less likely to report always cleaning their skin, and more likely to report sharing cookers [15]. Our findings, on the other hand, indicated no relationship between frequency of NEP attendance and needle sharing behaviors. Instead, length of NEP attendance seems to be significantly related to risk behaviors. It is possible that NEP participants, who have been with the NEP for a longer period of time, become more aware of prevention services that the NEP provides, and are more willing to utilize those services besides needle exchange.

The study findings should take into consideration several limitations. First of all, the primary purpose of this project was to explore the relationship between frequency and length of NEP attendance and participants' survey responses in program participation and risk behaviors. This examined self-reported behaviors and frequency & length of NEP participation. Since the majority of studies on NEP effectiveness have relied on self-reported program attendance, these findings have important implications [20]. However, it is possible that respondents fail to

accurately report information due to false reporting or recall problems. It is also likely that participants might have felt pressure to underreport risk behaviors. Additionally, the reporting of NEP attendance appears to be prone to socially desirable responding [20], we therefore recommend obtaining NEP attendance information through program data in the future.

Secondly, the sample size of the project (86) was relatively small for a quantitative study, which was mainly due to cost and time constraints. It was therefore difficult to find a strong relationship between the independent indicators and dependent variables. It makes this study primarily a description of participants in the SANA NEP, which provides a sample set of a predominantly white population of IDUs. Larger sample size would enable researchers to create a multivariate model in the analyses, and therefore help make the research more meaningful.

Third, the last survey question regarding types of program services received by participants was poorly administered in the survey, which might omit potential answers from NEP participants. Partially, the problem was due to miscommunication between survey administrators and the researcher. It implies that researchers should work on survey designing skills and monitor closely how data are collected, which could possibly affect research findings.

Despite these limitations, we believe that our results can be viewed as favorable evidence for the value of the SANA NEP in its efforts to reduce needle sharing and other risk behaviors among long-term NEP participants. In addition to future exploration of specific risk behaviors and program utilization issues, future studies should also anticipate and respond to client needs and their responses to prevention services identified through evaluation processes.

Appendix

Table 3(sample subset)

Needle Variables Characteristics, Univariate Analysis, Eugene, Oregon, 2007-2008

Characteristics	Percent (n=78)
Needle Variables	
Sharing needles at last time of injection	
Yes	9.2
No	90.8
Sharing partners	
None	79.7
1	8.7
2 or more	11.6
Services accessed	
Needles & Works	
Yes	80.9
No	19.1
Testing & Vaccinations	
Yes	34.3
No	65.7
Supplies	
Yes	41.8
No	58.2
Referrals	
Yes	3.0
No	97.0

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